

CLAIMS

1. A positioning unit that holds a movable member and changes a placement angle of the movable member to perform positioning of a distal end of the movable member, characterized by comprising:

first and second output shafts whose distal ends are pivotably connected with the movable member and which are provided parallel to each other and capable of reciprocating; and drive means for giving an arbitrary amount of advance/retraction to the first output shaft and constantly giving to the second output shaft an amount of advance/retraction at a constant ratio (#1) with respect to the amount of advance/retraction given to the first output shaft.

2. A positioning unit according to claim 1, characterized in that the drive means comprises external threads respectively formed in the first and second output shafts, a first nut and a second nut into which the external threads are respectively threaded, and a motor for rotating the first nut and the second nut.

3. A positioning unit according to claim 2, characterized in that a lead of the external thread formed in the first output shaft is different from a lead of the external thread formed in the second output shaft.

4. A positioning unit according to claim 2, characterized in

that a speed of rotation of the first nut is different from a speed of rotation of the second nut.

5. A positioning unit according to claim 1, characterized in that the drive means comprises racks respectively formed in the first and second output shafts, a first pinion and a second pinion which are respectively engaged with the racks, and a motor for rotating the first pinion and the second pinion.

6. A positioning unit according to claim 5, characterized in that a reference pitch of the rack formed in the first output shaft is different from a reference pitch of the rack formed in the second output shaft.

7. A positioning unit according to claim 5, characterized in that a speed of rotation of the first pinion is different from a speed of rotation of the second pinion.

8. A positioning unit according to any one of claims 1 to 7, characterized in that the movable member is a surgical instrument for medical care and that a distal end of the surgical instrument is positioned with respect to an area to be treated.

9. A positioning arm that holds a movable member and changes

a placement angle of the movable member to perform positioning of a distal end of the movable member, characterized by comprising:

a first unit that holds the movable member; and

a second unit that holds the first unit,

the positioning arm being characterized in that:

the first unit comprises: first and second output shafts whose distal ends are pivotably connected with the movable member and which are provided parallel to each other and capable of reciprocating; drive means for giving an arbitrary amount of advance/retraction given to the first output shaft and constantly giving to the second output shaft an amount of advance/retraction at a constant ratio (#1) with respect to the amount of advance/retraction given to the first output shaft; and a casing that houses the drive means; and

the second unit comprises: third and fourth output shafts whose distal ends are pivotably connected with the casing of the first unit and which are provided parallel to each other and capable of reciprocating, the third and fourth output shafts being respectively orthogonal to the first and second output shafts of the first unit; and drive means for giving an arbitrary amount of advance/retraction to the third output shaft and constantly giving to the fourth output shaft an amount of advance/retraction at a constant ratio (#1) with respect to the amount of advance/retraction given to the third output shaft.

10. A positioning arm according to any one of claims 1 to 7, characterized in that the movable member is a surgical instrument for medical care and that a distal end of the surgical instrument is positioned with respect to an area to be treated.